Paragraph beginning on page 4, line 24 as follows:

The connecting rod 5 may be produced preferably from plastic, for example from carbon fiber- or glass fiber-reinforced polyamide. A glass fiber-reinforced polyamide is suitable for the guide piston 7. Alternatively, a wrought aluminum alloy could be employed for the guide piston as indicated by the metallic piston 7a in FIG. 1a.

IN THE CLAIMS:

Please amend claims 4 and 8 as follows:

4. (Thrice Amended) The tamping machine as claimed in claim 1, wherein the piston guide is produced from plastic in one piece together with at least one dampening bush.

8. (Once Amended) The tamping machine as claimed in claim 5, wherein the piston guide is produced from plastic in one piece together with at least one dampening bush

REMARKS

1. Objection to the Drawings

In the Office Action, the Examiner objects to the drawings for the following reasons: the drawing must show the dampening bush of claim 4, the word "figure" is misspelled in each figure, and the phrase "PRIOR ART" is missing from Figure 2. The Examiner also requires that applicant furnish a drawing illustrating the piston guide produced from plastic in one (1) piece together with at least one damping bush.

Applicant submits herewith revised drawings under cover of a letter that identifies the drawings as such to the Official Draftsperson. In these drawings, the word "figure" is spelled correctly and the phrase "PRIOR ART" is added to Figure 2.

In response to the Examiner's objection regarding cross hatching, applicant proposes to revise Figure 1 to show the proper cross hatching for plastic for the connecting rod 5, the guide piston 7, and the piston guide 16 (including the expansion sleeve or dampening bushing 18, the expansion sleeve or dampening bushing 19, and the middle, wider edge 17) as described on page 5 of the application. Applicant also proposes to add a new Figure 1a in which the proper cross hatching for an alternative aluminum alloy guide piston 7 (now redesignated 7a) is shown. The specification has been amended accordingly at page 4.

The applicant respectfully traverses the objection requiring that the drawing show the dampening bush of claim 4 because the piston guide 16 is shown as integrating an expansion sleeve or dampening bushing 18, an expansion sleeve or dampening bushing 19, and a middle, wider edge 17 as one element. See, e.g., page 4, lines 36-38 of the application text. Hence, a dampening bush *is* illustrated.

2. Objection to the Specification

In the Office Action, the Examiner also objects to the specification because of the use of "damping bush." Per the Examiner's suggestion, applicant has amended the specification to replace "damping bush" with "dampening bush," where appropriate. As

a result, applicant respectfully requests that the Examiner withdraw the objection to the specification.

3. Objection to the Claims

In addition, claims 4 and 8 are objected to because of the use of "damping bush." Per the Examiner's suggestion, claims 4 and 8 have been amended, without changing their scope, to replace "damping bush" with "dampening bush." This clarifying amendment is *not* a narrowing amendment. Accordingly, applicant respectfully requests that the Examiner withdraw the objection to the claims.

4. Rejections Under 35 USC §103(a)

a. Claims 1 and 2

Turning now to the rejections of record, the Examiner has rejected claims 1 and 2 under 35 USC §103(a) as being unpatentable over Linz (U.S. Patent No. 3,756,735) in view of Darda (U.S. Patent No. 3,957,309). Applicant respectfully traverses this rejection because, *inter alia*, there is no teaching or suggestion to combine or modify the references to produce the claimed invention. MPEP §2143.01. Furthermore, even if the references were combined as proposed by the Examiner, the invention would not result.

The invention as recited in claim 1 is a tamping machine in which vibrations of the upper mass are reduced by damping the vibrations as soon as they occur. This object is accomplished by providing a tamping machine in which one or more linearly movable components of the crank mechanism of the device, namely the connecting rod, the guide

piston, or the piston guide, has a density lower than that of steel. By minimizing the weight of the linearly movable structural element, the vibrations of the upper mass can be reduced to a great extent because lower forces are transmitted by the lighter weight moving components.

The Examiner characterizes Figures 3-6 of Linz as illustrating piston-cylinder assemblies of the claimed type. That is not the case. The Figures in question instead *schematically* illustrate a tamping machine having springmass system in which a plunger disk is moved along a guide rod. Nor (contrary to the Examiner's assertions) do the cited figures show a piston-cylinder assembly. The rejection should be withdrawn for this reason alone.

The Examiner admits that Linz, though disclosing a tamper that is generally of the claimed type, lacks a crank mechanism having a linearly movable element formed from a material having a lower density than steel. The Examiner recognizes this deficiency of Linz and attempts to cure this deficiency by combining Linz with Darda.

Darda discloses an apparatus for mechanically breaking up rock. The apparatus breaks rocks by urging a number of pressure cheeks outwardly into engagement with a rock surface to splinter and crack the rock. The cheeks are urged outwardly by engagement with a slider wedge that is driven downwardly between the cheeks by a piston of a piston-cylinder assembly. However, the Darda patent rock breaking apparatus does not include an oscillating working mass as required by claim 1. Nor does the piston-cylinder assembly linearly reciprocate in the same manner as a crank mechanism of a tamping machine.

Furthermore, the tubular element 18 (FIG. 1) of Darda does not serve as a piston guide, as is contended on page 4 of the Office Action. Rather, the tubular element is screwed upwardly into a cylinder of the rock breaking apparatus of Darda, and the tubular element 18 comprises a recess formed in the lower end thereof in which two pressure cheeks are positioned. The pressure cheeks are supported such that they can only accommodate a limited inclined movement relative to the tubular element. (col. 4, lines 35-45). Contrary to the subject matter of claim 1, the pressure cheeks do not move linearly back and forth and, accordingly, cannot be considered a "piston" within any accepted meaning of that term. Tubular element 18 therefore cannot be considered a "piston guide." Linz lacks any corresponding element.

Turning now to the Examiner's specific argument in support of his position, the Examiner provides two lines of argument as to why it allegedly would have been obvious to provide the vibration tamper of Linz with an aluminum piston assembly. First, on page 4 of the Office Action, he contends that one of ordinary skill in the art would have been so motivated in order to reduce the deadweight of the tamper of Linz. Second, on page 9 of the Office Action, in the response to Applicant's arguments in response to the First Office Action, the Examiner further contends that Darda was combined with Linz in order to show the obviousness of reducing the weight of a piston guide (18) in order to increase the stability of the reciprocating unit. These contentions will be addressed sequentially.

First, there is no indication in Darda that weight reduction *per se* would be of a concern in a tamping implement of the type disclosed in Linz. To the contrary – Darda

lacks any discussion of a rationale for forming its piston guide from aluminum. Even if Darda were to provide a *general* teaching of the desirability of reducing weight in any hand-operated tool by reducing the weight of a piston-cylinder assembly (which it does not), it does not suggest forming any particular component's of Linz device from aluminum. Linz lacks a piston-cylinder assembly, and it is therefore unclear from Darda's teachings as to which, if any, components of Linz should be made from aluminum to obtain the result alleged by the Examiner to be desired in view of Darda. Because Darda's tubular element 18 is stationary and houses a moving *steel* tool, there is certainly no suggestion to form any of the claimed linearly reciprocating components from such a material. It would, at best, suggest making part of Linz's housing from aluminum. Therefore, any overall weight reduction accomplished in the rock breaking machine disclosed in the Darda patent does not suggest that weight reduction in one or more of the specified linearly reciprocated parts of the tamping machine will lessen the vibrations created by the tamping machine, as covered by the invention of claims 1 and 2.

The Examiner characterized applicant's argument as being based on the failure of the references to suggest the specific benefits obtained by the invention. That characterization is inaccurate. As should be clear from the preceding discussion, the references not only fail to suggest obtaining the benefits obtained by the invention, they also fail to suggest modifying Linz to form the specific claimed components (as opposed to other, functionally and structurally fundamentally different components) of a tool from aluminum. The absence of a specific suggestion of the benefits obtained by the invention only underscores applicant's point.

The Examiner's increased stability argument is even more flawed. Contrary to the Examiner's assertions, Darda was clearly of the opinion that aluminum is *unstable* and that Darda's aluminum tubular element must be reinforced with a protective *steel* ring to improve the mechanical stability of the lower end of the tubular element 18. (col. 4, lines 27-30). Protective steel rings could not be mounted on the moving components of Linz' tamping machine. Darda therefore teaches directly *away* from the invention by indicating that aluminum is less stable than aluminum and must be reinforced in a manner that is impossible in the claimed invention. To conclude otherwise is to impermissibly pick and choose between the teachings of Linz and Darda, latching onto the teachings of Darda that allegedly support the Examiner's position while ignoring other teachings that clearly undermine it. The courts have confirmed that such an approach is improper.

In short, because the subject matter of claim 1 and claim 2, which depends from claim 1, is neither taught nor suggested by the combination of Linz and Darda, applicant believes that claims 1 and 2 are allowable. Accordingly, applicant respectfully requests that the Examiner withdraw the rejection of claims 1 and 2.

b. Claims 3 and 4

The Examiner has also rejected claims 3/1, 3/2[1] and 4 as being unpatentable over the Linz and Darda patents, and further in view of Pauliukonis U.S. Patent 3,703,125. Applicant respectfully traverses the Examiner's rejections of claims 3 and 4 based on the Linz, Darda, and Pauliukonis patents because there is no teaching or suggestion to

[1] The Examiner's reference to claims 3/1 and 3/2 fails to acknowledge entry of the preliminary amendment of March 9, 2000, in which the multiple dependencies referenced by the Examiner were eliminated.

combine the references. Furthermore, even if the references were combined, the invention of claims 3 and 4 would not result.

Claims 3 and 4 ultimately depend from independent claim 1 which, based on the above arguments, is believed to be allowable. Furthermore, claims 3 and 4 define further limitations of the invention, which, when considered in combination with claim 1 are neither taught nor suggested by the prior art of record. For example, claim 3 requires the material from which the at least one structural element is produced to be a plastic. Additionally, claim 4 depends from claim 1 and requires that the piston guide be produced from plastic in one piece together with at least one dampening bush.

The Office Action acknowledges that Linz and Darda fail to teach or suggest a plastic piston assembly and tries to cure this deficiency with Pauliukonis. In particular, the Office Action alleges that Pauliukonis teaches a one-piece plastic or synthetic rubber piston assembly to comprising a piston guide 13 and at least one dampening bushing 5, 6, 8. The cited motivation to combine the references is "to reduce the deadweight of the tamper." (Office Action, page 4).

Regarding claim 3, there is no suggestion or motivation to combine the prior art of record to produce a plastic piston assembly because, as is explained above, the references do not teach or suggest the desirability of weight reduction in one or more of the linearly reciprocated parts of a tamping machine. Pauliukonis does not cure this deficiency.

With regard to claim 4, although Pauliukonis discloses an all-plastic one-piece molded cylinder housing 1 and a one-piece molded piston and rod assembly 2 comprised

of piston 14 and piston rod 16 (col. 2, lines 24-32), the reference fails to teach a "piston guide that is produced from plastic in one piece together with at least one dampening bush," as is required by claim 4. The elements pointed to by the Examiner as being the at least one dampening bushing, i.e., 5, 6, and 8, are not part of a one-piece piston guide as is required by claim 4. For example, elastomer seals 5 and 6 are separate parts that are slipped over piston rod 16. (col. 2, lines 35-36). Impact-absorbing pegs 8 are separate parts included on radial slots 23 that are located on piston rod 9. (col. 2, lines 60-64).

Additionally, in page 10 of the Office Action in the Response to Arguments section, the Examiner states that

> "because Pauliukonis does not specifically recite an intended use for the plastic actuating cylinder, the teaching is not limited to any specific intended use. The reference seems to contemplate all uses in which comparable metallic actuating cylinders are used, to include 'Jumping Jack' styled tamping devices, as disclosed by Linz and Darda."

The applicant respectfully disagrees with the Examiner's contention that it is unimportant that Pauliukonis does not describe any specific reason for using a plastic actuating cylinder. That argument is flawed because it, at best, constitutes an assertion that Pauliukonis does not specifically teach away from the proposed substitution. The lack of a teaching away does not alone justify combining references. Rather the references must explicitly or implicitly suggest some specific reason for the proposed combination. Pauliukonis lacks any such suggestion. Furthermore, the contention that the Pauliukonis plastic piston cylinder is "comparable" to Linz is not true. The devices of these two references are completely different in structure and function and therefore are not "comparable." Specifically, the actuating cylinder of Pauliukonis is actuated either by

hydraulic or pneumatic means (see col. 1, lines 7-8). Thus, the cylinder of Pauliukonis differs by employing a completely different principle when compared to the cranking mechanism as defined by the subject matter of claim 1, from which claims 3 and 4 depend.

The Examiner also argues in the same paragraph that applicant's arguments based on the lack of a suggestion in Pauliukonis to reduce vibrations are moot because the claims do not expressly recite vibration damping. However, inherent advantages of a claimed structure need not be claimed in order to base an argument for patentability on those advantages. *In re Antonie*, 195 USPQ 6, 8 (CCPA 1977) ("In delineating the invention as a whole, we look not only to the subject mater which is literally recited in the claim in question... but also to those properties of the subject matter which are inherent in the subject matter and are disclosed in the specification.") In the present case, improved vibration damping necessarily results from the claimed structural characteristics of a lightweight crank mechanism component and is neither disclosed nor suggested by Pauliukonis. In fact, as discussed above, Pauliukonis lacks any suggestion whatsoever to combine itself with Linz and Darda.

For at least these reasons, applicant respectfully requests that the Examiner withdraw the rejections to claims 3 and 4.

c. Claims 5 and 6

In addition, claims 5 and 6 stand rejected as being unpatentable over Yamaguchi (U.S. Patent No. 5,261,762) in view of Walker et al. (U.S. Patent No. 6,134,779). The

Examiner correctly recognizes that Yamaguchi does not disclose making one of the structural elements from a material having a lower density than steel. The Examiner cites Walker et al. to cure this deficiency. Applicant traverses this rejection because the August 25, 1998 international filing date of the PCT application of which this application is a national phase predates the November 16, 1998 filing date of the application for the Walker patent, hence rendering the Walker patent unavailable as prior art against the present application. When the Walker patent is removed from the equation, the remaining Yamaguchi patent alone neither discloses nor suggests the invention of claims 5 and 6. The Examiner admitted this deficiency by stating that the Yamaguchi patent does not disclose making one of the structural elements from the material having a lower density than steel.

d. Claims 5 and 7

The Examiner rejects claims 5 and 7 as being unpatentable over Yamaguchi in view of Hughes et al. (U.S. Patent No. 4,905,540). The Examiner correctly notes that Yamaguchi fails to disclose making one of the claimed structural elements from a material having a lower density than steel. The Examiner cites Hughes et al. to cure this deficiency. However, there is no teaching or suggestion to combine the references to produce the claimed invention.

Hughes et al. discloses a fiber reinforced plastic connecting rod for use in internal combustion engines. According to Hughes, this construction results in an engine that has reduced energy loss during engine operation. (col. 1, lines 5-13). These teachings are

completely inapplicable to a tamping machine, which operates at dramatically lower RPMs than an internal combustion engine and in which energy losses based on material properties are of no concern. Nothing in Hughes suggest that its teachings are applicable to anything other than connecting rods for internal combustion engines. Therefore, one of ordinary skill in the art would not have been motivated to apply the teachings of Hughes et al. to Yamaguchi or any other tamping machine.

Hence, the invention of claim 5 is nonobvious over the combination of Yamaguchi and Hughes et al. Claim 7 depends from claim 5 and is allowable for at least the reasons that claim 5 is allowable. Accordingly, withdrawal of the rejection of claims 5 and 7 is requested.

e. Claim 8

Claim 8 stands rejected as being unpatentable over Yamaguchi in view of Hughes et al. as applied to claim 5 and further in view of Pauliukonis. The Office Action acknowledges that the combination of Yamaguchi and Hughes et al. fails to disclose a one-piece piston assembly. The Office Action cites Pauliukonis to cure this deficiency.

Claim 8 requires, *inter alia*, the piston guide to be produced from plastic in one piece together with at least one dampening bush. The above arguments with respect to claim 4 apply with equal force to claim 8. For at least these reasons, claim 8 is believed to be allowable. Accordingly, withdrawal of the rejection of claim 8 is requested.

4. Conclusion

A check for $110 is enclosed in payment of the fee for a request for a one-month extension of time, which applicants hereby make. No other fees are believed to be payable with this communication. Nevertheless, should the Examiner consider any other fees to be payable in conjunction with this or any future communication, the Director is authorized to direct payment of such fees, or credit any overpayment to Deposit Account No. 50-1170. In view of the foregoing remarks, the application is believed to be in prima facie condition for allowance, and such action is respectfully requested. The Examiner is invited to contact the undersigned by telephone if it would help expedite matters.

Respectfully submitted,

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Dated: July 9, 2002

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MARKED-UP VERSION SHOWING CHANGES MADE

Amended Specification Paragraphs

Please amend the paragraph beginning on page 1, line 33:

A spring assembly 11 consisting of a plurality of springs is arranged on both sides of the piston guide 9, the springs in each case being supported, on their side facing away from the piston guide 9, against spring plates 12 fastened to the guide tube 10. In order to avoid the spring assemblies 11 being blocked together, a ~~damping~~ dampening bush ~~device~~ 13 made from an elastic plastic is placed onto the guide piston 7 above the piston guide 9, whilst a damping plug 14, likewise consisting of elastic plastic, is attached below the nut 8. When the spring assemblies 11 are highly compressed, the ~~damping~~ dampening bush 13 and the damping plug 14 can in each case butt onto the associated spring plate 12 with their side facing away from the piston guide 9. They then damp the further compressive movement in such a way that the situation can be avoided where the spring assemblies 11 are blocked together and an excessive impact action is consequently exerted on the working machine.

Please amend the paragraph beginning on page 3, line 36:

In a particularly advantageous embodiment, the piston guide can be produced from plastic in one piece together with a dampening ~~damping~~ bush, preferably with two ~~damping~~ dampening bushes. In addition to the mass reduction mentioned, this leads to a simplification of the production method and therefore likewise to a cost reduction.

Please amend the paragraph beginning on page 4, line 1 as follows:

This and other features of the invention are explained in more detail below with the aid of the figures, of which:

Figure 1 shows a sectional illustration of part of a tamping machine according to the invention;

Figure 1a shows a sectional illustration of part of another embodiment according to the invention; and

Figure 2 shows a part section through a known tamping machine.

Please amend the paragraph beginning on page 4, line 24 as follows:

The connecting rod 5 may be produced preferably from plastic, for example from carbon fiber- or glass fiber-reinforced polyamide. ~~Wrought aluminum alloys or, likewise,~~ A glass fiber-reinforced polyamide ~~are~~ is suitable for the guide piston 7. Alternatively, a wrought aluminum alloy could be employed for the guide piston as indicated by the metallic piston 7a in FIG. 1a.

MARKED-UP VERSION SHOWING CHANGES MADE

Amended Claims

4. (Thrice Amended) The tamping machine as claimed in claim 1, wherein the piston guide is produced from plastic in one piece together with at least one ~~damping~~ dampening bush.

8. (Once Amended) The tamping machine as claimed in claim 5, wherein the piston guide is produced from plastic in one piece together with at least one ~~damping~~ dampening bush.